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Title: STOP The Cycle: The Impact of Vaping-related Layered Learning on High School Students

Background: While traditional, combustible cigarette smoking in youth may be on the decline, electronic cigarettes (e-cigarettes) are replacing them at an alarming rate. Limited evidence is available on the long-term consequences of vaping, but it is well known that nicotine exposure can lead to addiction, harming adolescents' developing brains by impairing attention, learning, and memory, as well as potentially worsening anxiety and impulsivity. Vaping has also been associated with respiratory illness and lung damage. Study investigators identified a clear, unmet need in our community for evidence-based education on the dangers of e-cigarettes, designing a peer-to-peer learning program called, "STOP The Cycle," where S.T.O.P stands for Students Teaching Other Peers. The purpose of this pilot survey study was to measure the change in knowledge and perceived confidence regarding vaping among Illinois and Missouri high school students who had completed "STOP The Cycle" program.

Methods: In this descriptive, quantitative, IRB-approved pilot survey study, the following layered learning model was implemented: study investigators educate SIUE School of Pharmacy PharmD candidates through a series of pre-recorded online modules; study investigators and select SIUE School of Pharmacy PharmD candidates educate high school students through an interactive, virtual educational symposium; PharmD candidates and high school students work together as peer mentors and "Vaping BINGO" educators to middle school students. The three-hour high school symposium included the six-lecture "STOP The Cycle" curriculum and "Vaping BINGO" training. The study included survey respondents who were currently Illinois or Missouri-residing 9<sup>th</sup> - 12<sup>th</sup> grade students who attended the November 14, 2020 symposium. Pre- and post-education surveys, created on the Qualtrics platform, were completed confidentially.

Results: Nine students attended the entirety of the educational programming, completing both the pre- and post-surveys. However, one student did not consent to the analysis of his/her responses in the post-survey. In only one of the content-related survey questions did students perform worse in the post-survey than in the pre-survey. Of the remaining nine content-questions, there was either improvement or no change. Notably, baseline knowledge of vaping appeared to be high amongst program attendees. Three questions had 100% correct responses both in the pre-survey and post-survey.

Conclusion: Though the "STOP The Cycle" program faced numerous challenges due to the ongoing COVID-19 pandemic, education was still successfully provided to nine eager high school students from Illinois and Missouri. However, due to the greatly limited sample size, significance of the changes in vaping-related knowledge levels cannot be determined.